Critical Care Excellence in Sepsis and Trauma - CREST

NIH Challenge Grant from the National Institute of Health’s Center for Minority Health and Disparities
CREST Personnel

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CREST Rationale

- Intensivists improve outcomes
- There is a national shortage of intensivists
- Small, rural communities lack resources and economies of scale
- Proprietary, full-service tele-ICU’s are costly
CREST Rationale

- Is there a technologic middle-ground to selectively leverage MUSC’s critical care expertise into rural, local hospitals when it is clinically most imperative?

- The “golden hours”...
Hypothesis
A telemedicine program including education and clinical consultation between a tertiary care academic medical center and rural, local hospitals will significantly improve key treatment decisions and outcome measures in sepsis and trauma.
CREST Research Design

- Quasi-experimental pre/post intervention
- Propensity score matched controls
- Multivariable regression modeling accounting for clustering
Hub-and-Spoke Model

Patient in Spoke ED

MUSC = hub

Hub MD + laptop

EMERGENCY
CREST Telemedicine Platform
Hospital Selection

- Four sites enrolled
  - Medically underserved counties
  - USDA designated rural counties

- First site: Orangeburg Regional Medical Center
  - Education roll out complete
  - Consults beginning soon
Lessons Learned (so far)

- Institutional
- Technological
- Research
Lessons Learned

- Institutional
  - Low resource hospitals have few resources
  - Everything takes more time than anticipated
    - Arrange 1st visit, MOA, credentialing, etc.
    - Internal procedures
  - Patients are hospitals’ economic basis
    - Concern over loosing patients to larger center
  - Communication is essential
    - Local champion is invaluable
Lessons Learned

- Technological
  - There is always something with IT
  - Stipulate in the contract key details
    - Timelines
    - Deliverables
    - Contingency plans
  - Technical dry runs and more dry runs
Lessons Learned

- **Research**
  - Different perspectives – research project versus educational and clinical program
  - Federal Wide Assurance (FWA) – you gotta’ have one
  - Training onsite staff is challenging
CREST Pre-implementation Research Products

- Organizational assessment tools
- Domains
  - evidence assessment
  - clinical experience
  - hospital characteristics
  - program champion
  - culture/climate
  - perceived ease of use
  - usefulness
  - change readiness
  - change efficacy
  - style
  - leadership
CREST Pre-implementation
Research Products

- **Key informant interviews**
  - Orangeburg: n=8
  - Bamberg: n=4
  - Barnwell: n=6
  - Williamsburg: n=5

- **CME/CE (thus far only at Orangeburg)**
  - Sepsis CE credit given to: 21
  - Sepsis CME credit given to: 14
  - Trauma CE credit given to: 23
  - Trauma CME credit given to: 11
Summary

- Substantial pre-research effort is necessary
- Distinct from conventional clinical trials
- Unique scientific skills required
  - Effectiveness versus efficacy